REMARKS

Claims 1-33 all the claims pending in the application. Claims 2-20 and 22-33 stand objected to upon informalities. Claims 1-33 stand rejected upon informalities. In addition, the drawings and specification are objected to. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The 35 U.S.C. §112, First Paragraph, Rejection

Claims 1-33 stand rejected under 35 U.S.C. §112, first paragraph. This rejection is respectfully traversed because the drawings and specifications illustrate the claimed loop were data passes from the latches 122, to a selector 107, then to a second selector 110, next to a third selector 106, and back into the latches 122. It is Applicants' position that the output of the selector 110 is connected to the input of selector 106, which is contrary to the conclusion drawn in the Office Action (which states that the outputs of multiplexers 106 and 110 are connected to one another and that, therefore, the claimed wiring loop is not enabled).

Applicants note that the specification describes items 106, 107, and 110 as selectors/multiplexers and does not limit the manner in which the selectors can transmit data. Further, the drawings and specifications illustrate and describe that the output of selector 110 is connected to the input of selector 106. Therefore, as explained in greater detail below, the design properly includes the claimed wiring loop and, therefore, the requirements of 35 USC §112, first

paragraph, regarding enablement are satisfied.

Is was well known at the time of the invention to those ordinarily skilled in the art that multiplexers, demultiplexers, switches, etc. can be designed to operate in one direction, both directions, etc. (see, for example, US patents 5,526,361; 5,734,283; and 5,150,364, which discuss many types of multiplexers and demultiplexers that are commonly known in the art). One function of selectors is to connect one channel with one of a choice of different channels. Another function of selectors is to selectively allow data to pass from one input to an output depending upon the status of a control signal. These types of selectors are well-known in the art field as evidenced by the foregoing patents and many other technical teachings, and these types of selectors are utilized with the claimed invention and are illustrated in Figure 1.

In Figure 1, data being output from selector 107 is input to selector 110. This is illustrated where selector 107 includes the term "out" next to an unlabeled signal line that connects to an input of selector 110. This is also shown where the selector 110 includes four inputs I1-I4, where the uppercase "I" is well-known by those ordinarily skilled in the art to represent "input." Selector 110 includes an output (again labeled "out") that outputs the data along line 105 to the input (again labeled "I" for input) of the selector 106. Selector 106 outputs the data to any of its output ports O1-O4 (again, the uppercase "O" is well-known by those ordinary skill in the art to represent "output"). Selectors 106 and 107 operate in concert to select one of the latch chains 112-114. The specification also enables the claimed "wiring loop". For example, paragraph 28 explains that the control logic 100, either as part of a normal operation, or as a specific operation code can be programmed to select one of the shift registers 112-114, and

cause that shift register to shift in a rotating circular fashion via the two multiplexors 106, 107. Thus, applicants submit that Figure 1 and the specification both enable the claimed "wiring loop connecting the input of said shift register with the output of said shift register" as defined, for example, by independent claim 1.

In the first full paragraph on page four of the Office Action, the rejection states that it is not clear how the data is processed so that the data is not altered. In addition, this paragraph mentions that the data will be zeroed out during the loop process. In response, applicants note that the data is merely circulated (one latch at a time) through the shift registers and processing loop 107, 110, 105, 106 and back into the latches in an unaltered manner. As the data flows from the last latch, the remaining latches shift the data up one latch as the first latch receives the data from the last latch. This allows the data to be transferred through all the latches in an unaltered manner. The data is not zeroed out during this process, but instead this process of looping the data through the wiring loop allows the data to be observed through the observation wiring 118, which does not affect or alter the data.

Applicants note that the invention includes an alternative embodiment having the ability to automatically determine the length of the shift registers prior to storing any data in this shift registers and this information is stored in the length storage registers 132-134 (see paragraph 18). This process uses logical zeros and logical ones to determine the length of the shift registers; however, one ordinarily skilled in the art would understand that this process is performed before any data is stored in the shift registers and is only performed to determine the length of the shift registers. The process of observing the data within the shift registers (as the data passes through

the wiring loop) does not zero out any of the data during the observation process.

As explained in paragraph 17, the control device 100 that is connected to the wiring loop 105 uses the wiring loop 105 to cause the data to be continually transferred from the output 122 of the selected shift register to the input 121 of the selected shift register and back through the selected shift register in a circular manner, without altering the data. The data is not zeroed out in the looping process.

Paragraph 18 explains that the signal line 115 that is connected to the multiplexor 110 allows the control device 100 to determine when all the data within the shift registers 112-114 has been circularly transferred through the wiring loop 105 and back into the shift registers 112-114. Thus, the length storage registers 132-134 within the control device 100 limit the circular transfer of data within the wiring loop 105 and the selected shift registers 112-114 such that all of the data is circulated through the wiring loop 105 a single time and the data is at the same position within the selected shift register 112-114 before and after the circular transfer of the data. -Further, paragraph 19 explains that after the data is circularly transferred through the wiring loop 105, it returns to its original position within each of the shift registers 112-114. Therefore, with the invention, the data within the shift registers 112-114 is left essentially undisturbed even after it has been fully observed.

In the last paragraph on page 4, the Office Action states that it is not clear how the data that is passing through the loop is observed. In response, Applicants note that signal line 118 is connected to the input of selector 110. Therefore, a data signal traveling along the signal line between the output of selector 107 and the input of selector 110 will be supplied to the

observation port on the control device 100 and also supplied to the selector 110. The technology regarding wiring connections that distribute the same signal to multiple points was well known (at the time of the invention to those ordinarily skilled in the art) to have the ability to supply the same signal to two different devices or locations. The connection of signal line 118 does not divert the signal away from the wiring loop, but instead supplies the signal to both the observation signal line 118 and to the selector 110. This allows the selector 110 to supply the data back into the shift registers 112-114 and also simultaneously allows the observation port on the control device 100 to observe the data that is stored within the shift registers 112-114. Therefore, the data can be observed without being altered, and the data is returned in an unaltered state back to the shift registers.

Paragraph 20 explains that the observation wire 118 is connected to the wiring loop 105, and the data passes from the wiring loop 105 to the control device 100 through the observation wire 118. The control device 100 outputs data appearing on the wiring loop 105 through the observation input/output port 103 as the data is circulated through the selected shift register and wiring loop 105 to permit data within the selected shift register to be observed outside the circuit without altering the data within the selected shift register.

Thus, as shown above, Applicants submit that the claimed "wiring loop", and the claimed ability of the "data within said shift register be observed outside said circuit without altering said data within said shift register" is fully disclosed in the drawings and specification as originally filed. Thus, is applicant's position that the requirements under 35 USC § 112, first paragraph, are met. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw

this rejection.

II. Formal Matters and Conclusion

With respect to the objection to the specifications, a Substitute Specification is submitted herewith to overcome this objection. With respect to the objection to the drawings, Replacement Sheets are submitted herewith. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections to the specification, claims and drawings.

In view of the foregoing, Applicants submit that claims 1-33, all the claims presently pending in the application, are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

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